Project 2
Instagram User Analytics

Project Description: This project aims to analyze user interactions and engagement with the Instagram app to provide valuable insights that can help the business grow. User analysis involves tracking how users engage with a digital product, such as a software application or a mobile app. The insights derived from this analysis can be used by various teams within the business.

Approach: This project is executed using using SQL. It involves creation of database from the raw data, then extracting the data based on the relation between different tables and columns to obtain the required data, to analyze the insights from that data.

Tech-Stack Used:

The tech-stack used for this project is MySQL Ver 8.0.37.

Insights:

A) Marketing Analysis:

1) Loyal User Reward: The marketing team wants to reward the most loyal users, i.e., those who have been using the platform for the longest time.

Code:

```
SELECT id, username, created_at from users
ORDER BY created_at ASC
LIMIT 5;
```

Results:

id	username	created_at
80	Darby_Herzog	2016-05-06 00:14:21
67	Emilio_Bernier52	2016-05-06 13:04:30
63	Elenor88	2016-05-08 01:30:41
95	Nicole71	2016-05-09 17:30:22
38	Jordyn.Jacobson2	2016-05-14 07:56:26
NULL	NULL	NULL

Insights:

It is found that users with user ID 80,67,63,95 and 38 are the most loyal users. They are using the platform for the longest time and they can be rewarded.

2) Inactive User Engagement: The team wants to encourage inactive users to start posting by sending them promotional emails.

Code:

```
SELECT users.id, users.username FROM users
LEFT JOIN photos
ON users.id = photos.user_id
WHERE photos.user_id IS NULL;
```

Results:

id	username
5	Aniya_Hackett
7	Kasandra_Homenick
14	Jaclyn81
21	Rocio33
24	Maxwell.Halvorson
25	Tierra.Trantow
34	Pearl7
36	Ollie_Ledner37
41	Mckenna17
45	David.Osinski47
49	Morgan.Kassulke
53	Linnea59
54	Duane60
57	Julien_Schmidt
66	Mike.Auer39
68	Franco_Keebler64
71	Nia_Haag
74	Hulda.Macejkovic
75	Leslie67
76	Janelle.Nikolaus81
80	Darby_Herzog
81	Esther.Zulauf61
83	Bartholome.Bernhard
89	Jessyca_West
90	Esmeralda.Mraz57
91	Bethany20

Insights:

The above-mentioned users are found to be inactive, these users can be encouraged to start posting by sending them promotional emails.

3) Contest Winner Declaration: The team has organized a contest where the user with the most likes on a single photo wins.

Code:

```
SELECT users.id, users.username, photos.id, photos.image_url, count(likes.photo_id) AS count_of_likes FROM users
INNER JOIN photos
ON users.id = photos.user_id
INNER JOIN likes
on photos.id = likes.photo_id
GROUP BY users.id, users.username, photos.id, photos.image_url
ORDER BY count_of_likes DESC
LIMIT 1;
```

Results:

	id	username	id	image_url	count_of_likes
▶	52	Zack_Kemmer93	145	https://jarret.name	48

Insights:

User with user ID 52, zack_kemmer93 with photo Id 145 has most likes of 48 on a single photo. Therefore, user ID 52, zack_kemmer93 is the winner of the organized contest.

4) Hashtag Research: A partner brand wants to know the most popular hashtags to use in their posts to reach the most people.

Code:

```
SELECT tags.tag_name, count(photos.user_id) AS count_of_tags FROM photos
INNER JOIN photo_tags
ON photos.id = photo_tags.photo_id
INNER JOIN tags
ON photo_tags.tag_id = tags.id
GROUP BY tags.tag_name
ORDER BY count_of_tags DESC
LIMIT 5;
```

Results:

	tag_name	count_of_tags
▶	smile	59
	beach	42
	party	39
	fun	38
	concert	24

Insights:

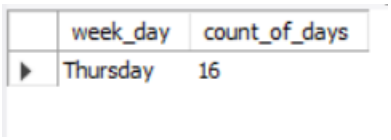
It is found that smile, beach, party, fun and concert are the most popular hashtags that are used by most people in their posts.

5) Ad Campaign Launch: The team wants to know the best day of the week to launch ads.

Code:

```
SELECT dayname(created_at) AS week_day, count(id) AS count_of_days FROM users
GROUP BY week_day
ORDER BY count_of_days DESC
LIMIT 1;
```

Results:



	week_day	count_of_days
▶	Thursday	16

Insights:

Team can schedule an ad campaign on Thursday as most of the users have registered on Instagram on Thursday.

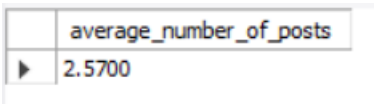
B) Investor Metrics:

1) User Engagement: Investors want to know if users are still active and posting on Instagram or if they are making fewer posts.

Code:

```
SELECT ((SELECT count(id) FROM photos)/(SELECT count(id) FROM users)) AS average_number_of_posts;
```

Results:



	average_number_of_posts
▶	2.5700

Insights:

The average number of posts per user on Instagram is 2.57 i.e., about 3 posts per user.

2) Bots & Fake Accounts: Investors want to know if the platform is crowded with fake and dummy accounts.

Code:

```
SELECT users.id, users.username, count(photo_id) AS count_of_liked_photos FROM likes
INNER JOIN users
ON users.id = likes.user_id
GROUP BY users.username
HAVING count_of_liked_photos = (SELECT count(id) FROM photos);
```

Results:

	id	username	count_of_liked_photos
▶	5	Aniya_Hackett	257
	14	Jadyn81	257
	21	Rocio33	257
	24	Maxwell.Halvorson	257
	36	Ollie_Ledner37	257
	41	Mckenna17	257
	54	Duane60	257
	57	Julien_Schmidt	257
	66	Mike.Auer39	257
	71	Nia_Haag	257
	75	Leslie67	257
	76	Janelle.Nikolaus81	257
	91	Bethany20	257

Insights: The above users have liked every single photo on the site there is a high probability that those users are fake.